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BRIEF REPORT

Testing a Dissonance Body Image Intervention Among Young Girls

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Objective: Body image and eating disorder interventions based on cognitive dissonance have been shown to be effective among girls and women aged 14 and above. This article reports a preliminary examination of whether a dissonance intervention is also effective when delivered in a school setting to 12- and 13-year-old girls in the United Kingdom ***Method:*** Girls (N = 106, mean age = 12.07 years, *SD* = .27) were allocated to the intervention condition or a waitlist control. ***Results:*** In contrast to the control group, girls in the intervention condition reported significant reductions in body dissatisfaction and internalization of a thin body ideal post-intervention. There was no significant change in self-reported dietary restraint for either condition. In addition, compared with the control group, girls in the intervention condition showed increased resilience to negative media effects 1-month post-intervention. ***Conclusions:*** Results suggests that dissonance based programs can reduce body dissatisfaction, internalization and negative media effects among a younger group of girls than previously examined and in an United Kingdom school setting.

Keywords: cognitive dissonance, interventions, body dissatisfaction, adolescent, girls

Body dissatisfaction is an important health issue; it is reported by 50%–70% of adolescent girls (Wertheim & Paxton, 2011) and has numerous negative consequences including increased negative affect (Stice & Bearman, 2001) and reduced levels of physical activity (Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006). Body dissatisfaction is also a risk factor for the onset of eating disorders (Stice, Marti, & Durant, 2011).

Cognitive dissonance based (CD) interventions are emerging as efficacious and effective eating disorder and body dissatisfaction prevention programs. A meta-analytic review revealed that they are the most effective targeted interventions to date for girls aged 14 and above (Stice, Shaw, & Marti, 2007). For girls with pre-existing body image issues, CD interventions lead to reductions in thin-ideal internalization, body dissatisfaction, negative affect, psychosocial impairment, and risk for onset of eating disorders (Stice et al., 2007) with effects maintained up to 3 years post-intervention (e.g., Stice, Rohde, Shaw & Gau, 2011). In addition, there is evidence that CD interventions are also effective as universal prevention programs, although they have smaller effects in universal than in targeted trials (e.g., Becker, Smith & Ciao, 2006).

CD interventions are multifaceted, incorporating dissonance, psycho-educational, media literacy, and behavioral components. However, a critical component of the intervention is engaging participants in counter-attitudinal activities that require them to speak out against the thin ideal of beauty (Stice & Presnell, 2007). This creates dissonance because individuals who internalize the thin ideal are acting in a manner inconsistent with their beliefs. As dissonance is uncomfortable, individuals change their beliefs to correspond with their actions. Therefore, facilitators encourage all participants to make counter-attitudinal statements during the sessions. Comparison of CD activities and the full intervention indicates that both are effective at reducing eating pathology (Roehrig, Thompson, Brannick, & van den Berg, 2006) and supports the central role of dissonance. The most widely used CD programs involve 4 hours of intervention. However, 2 hours of intervention has been shown to be effective at reducing body dissatisfaction, thin-ideal internalization, and eating disturbance among college women (Matusek, Wendt, & Wiseman, 2004).

To date, CD interventions have only been examined among girls aged 14 or older, and there is currently no intervention with a similar evidence-base for early adolescent girls. This is an important gap in the literature. Body dissatisfaction is often established before age 14 and internalization is evident among 7- to 11-year-old girls (Evans, Tovée, Boothroyd & Drewett, 2013). The need for early prevention efforts has been increasingly recognized by researchers and clinicians (Holt & Ricciardelli, 2008). Given the efficacy of CD interventions with older samples, it is useful to examine their suitability for girls in early adolescence.

Exposure to media portraying the thin ideal of beauty is a variable risk factor for the development of body dissatisfaction and disordered eating among girls (Levine & Murnen, 2009). Meta-analysis reveals that exposure to thin-ideal media has an immediate negative effect on adolescent girls' body image (e.g., Grabe, Ward, & Hyde, 2008). To date, the ability of CD

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interventions to increase resilience to media exposure effects has not been investigated.

This study extends previous research by examining the effectiveness of a relatively brief, CD intervention among 12- and 13-year-old girls in the United Kingdom. It examines whether a CD intervention has the capacity to increase girls' resilience to thin-ideal media, in addition to reducing self-reported dietary restraint, thin-ideal internalization, and body dissatisfaction.

Method

Participants

Participants were 104 girls aged 12 and 13 years (M_{age} = 12.07, SD_{age} = .27; M_{BMI} = 19.92, SD_{BMI} = 4.56), from a single-sex secondary school. Seventy percent of the girls were White, 7% were Black, 12% were Asian, and 11% were Mixed Race. School staff assigned two classes (n = 52) to the intervention condition and two classes (n = 52) to the control condition. Ninety-six girls completed a follow-up media exposure study and were randomly allocated to a model exposure (n = 47) or control condition (n = 49).

Materials

The intervention sessions. Six activities from the Body Project (Stice & Presnell, 2007) were selected for this intervention. Participants also completed two additional psycho-educational and media literacy activities which focused on critiquing the thin ideal. The content of each session is reported in Table 1.

Media exposure images. Advertisements were selected from magazines aimed at adolescent girls. In the model exposure condition, three featured thin models and one featured the product only. In the control condition, the four advertisements featured hair or perfume products and no models.

Measures

Internalization of the thin ideal. The Thin Ideal Internalization Scale (Stice & Agras, 1998) was administered. Pretesting revealed that 12-year-old girls did not understand the term "shapely" and this item was deleted for this study. Items were rated on a 5-point Likert scale (1 = *strongly disagree* and 5 = *strongly agree*). The Cronbach's alpha was 0.77 at baseline and 0.76 post-intervention.

Body dissatisfaction. Participants rated their satisfaction on four items (weight, stomach, buttocks, and thighs) from the Body Parts Scale (Berscheid, Walster, & Bohrnstedt, 1973) on a 5-point Likert scale (1 = *very satisfied* and 5 = *very dissatisfied*). The Cronbach's alpha was 0.82 at baseline and 0.83 post-intervention.

Dietary restraint. The Dutch Restrained Eating Scale (DRES; Van Strien, Frijiters, Bergers, & Defares, 1996) was used with items rated on a 5-point Likert scale (1 = *never* and 5 = *always*). The Cronbach's alpha was 0.87 at baseline and 0.88 post-intervention.

These trait measures are valid for adolescent girls (Stice, Shaw, Burton, & Wade, 2006).

State body satisfaction. Participants rated how satisfied they felt *right now* with their "body size and shape" and their "weight" on a 7-point scale (1 = *extremely dissatisfied* and 7 = *extremely satisfied*). The items were highly correlated, $r(94) = .85$, $p < .001$.

Table 1
The Content of the Intervention Sessions

Session	Content
1	1. Introduction to the program and voluntary commitment 2. Defining and exploring the origins of the thin-ideal of female beauty 3. Homework: Mirror exercise.
2	1. Review of the homework 2. Cost of pursuing the thin ideal. Due to the age of the participants this discussion was limited to the costs of the thin ideal to themselves and other girls, and the instructions were rephrased to ask "What negative things might happen to someone trying to look like the thin ideal?" 3. Homework: Participants were asked to write a letter to a teenage girl who is struggling with her body image to persuade the girl not to pursue the thin-ideal.
3	1. Review of the homework. 2. The session focused on critiquing beauty ideals and beauty myths. Participants watched a short (1 minute) film called Evolution, produced by Dove to demonstrate airbrushing.* 3. Appearance facts or fiction exercise. Participants reviewed whether six statements were generally regarded as fact or fiction. Five of the statements reflected dominant beauty myths, (e.g., "Most models and actresses are a healthy weight," "Attractive people are happier than less attractive people"), and one focused on the media ("Looking at fashion magazines can make girls and women feel bad about themselves"). They were then given evidence challenging each beauty myth and supporting the media effect and asked to reassess their original answers.*
4	1. Role-play to resist pressure to pursue the thin ideal. The facilitator took the role of a severe dieter and participants attempted to dissuade her from dieting

Note. * Additional activities.

Procedure

The study was approved by the university ethics committee. Passive parental consent was obtained for 98% of girls. A week before the intervention girls were informed about the study and invited to participate. All eligible girls consented and completed the baseline questionnaire supervised by the first author. Girls in the control condition attended their regular lessons which did not include content related to body image. Girls in the intervention condition attended weekly 20 minute sessions for 4 weeks. They worked in groups of six to eight facilitated by one of the authors or a doctoral student. The week after the last session all participants completed the follow-up questionnaire supervised by a researcher.

Four weeks later, participants took part in a media exposure study. This was presented as an unrelated study investigating attitudes toward advertising in teenage magazines and was administered by a different researcher. Participants were asked to complete a questionnaire evaluating the effectiveness of four advertisements either featuring models or control images. They were told that current mood can influence our preferences and were

asked to rate how they were feeling *right now* about various aspects of their lives including two items assessing state body satisfaction. Participants were debriefed. After the study was completed the control group of girls were also invited to take part in the intervention.

Results

Fourteen participants did not complete the follow-up questionnaire; they did not differ significantly from the participants who completed follow-up on any variables. Maximum-likelihood estimation was used to impute missing data for these participants as it is preferable to case deletion (Schafer & Graham, 2002). At baseline there were no significant differences between the girls assigned to each condition on BMI, internalization, or restraint. However, girls in the intervention condition reported higher body dissatisfaction ($M = 3.09$, $SD = .93$) than girls in the control condition ($M = 2.70$, $SD = .86$), $t(102) = -2.32$, $p = .02$, $d = .44$.

The Impact of the Intervention Sessions

A mixed-design MANOVA with time as a within-subject factor (Time 1 [T1], Time 2 [T2]) and condition as a between-subject factor (intervention, no intervention) revealed a significant interaction effect, $\lambda = .88$, $F(3, 100) = 4.49$, $p = .01$, partial $\eta^2 = .12$. Significant univariate interaction effects between time and condition were evident for internalization, $F(1, 102) = 7.10$, $p = .009$, partial $\eta^2 = .07$, and body dissatisfaction, $F(1, 102) = 10.02$, $p = .002$, partial $\eta^2 = .09$, but not for restraint, $F(1, 102) = .77$, $p = .38$, partial $\eta^2 = .01$.

In the control group there were no statistically significant differences across time for internalization, $t(51) = -1.13$, $p = .26$, $d = -.12$ (T1: $M = 3.16$, $SD = .67$; T2: $M = 3.24$, $SD = .69$) or body dissatisfaction, $t(51) = -1.20$, $p = .24$, $d = -.10$ (T1: $M = 2.68$, $SD = .86$; T2: $M = 2.77$, $SD = .89$). However, the intervention group reported significantly reduced internalization, $t(51) = 2.44$, $p = .02$, $d = .36$, (T1: $M = 3.20$, $SD = .83$; T2: $M = 2.91$, $SD = .80$) and body dissatisfaction, $t(51) = 3.18$, $p = .003$, $d = .29$ (T1: $M = 3.09$, $SD = .93$; T2: $M = 2.82$, $SD = .96$).

Vulnerability to Media Exposure

A 2 (intervention vs. control) × 2 (model condition vs. no model condition) ANOVA revealed nonsignificant main effects for intervention $F(1, 80) = 2.16$, *ns*, partial $\eta^2 = .03$, and media exposure, $F(1, 80) = 1.32$, *ns*, partial $\eta^2 = .02$. However, there was a significant interaction between the intervention and exposure, $F(1, 73) = 6.61$, $p < .05$, partial $\eta^2 = .08$.

The control participants reported less body satisfaction after exposure to thin models ($M = 3.63$, $SD = 1.75$) than after control images ($M = 4.78$, $SD = 1.63$), $F(1, 37) = 4.46$, $p < .05$, partial $\eta^2 = .11$. In the intervention group there was no significant difference between state body satisfaction reported after viewing thin models ($M = 4.88$, $SD = 1.71$) or control images ($M = 4.55$, $SD = 1.27$), $F(1, 43) = .57$, *ns*, partial $\eta^2 = .01$.

Discussion

Girls aged 12 and 13 reported significantly lower levels of trait body dissatisfaction and internalization after participating in a relatively short CD intervention. These findings are promising as they suggest that CD interventions may be effective among a younger group of girls than has been previously studied and that the intervention is effective in the United Kingdom, as well as the U.S. Another novel finding of this study is that the girls who took part in the intervention were protected from negative media exposure effects 5 weeks post-intervention. This suggests that CD interventions may also provide resilience to thin-ideal media imagery, a variable risk factor for the development of eating disorders (Levine & Murnen, 2009). The media exposure results also have the advantage of being free from demand characteristics typically associated with repeated measurement in intervention trials.

As expected, the effect sizes in this study ($d = .36$ for internalization and $d = .29$ for body dissatisfaction) are lower than effect sizes from pre- to immediately post-intervention in targeted trials (internalization, $d = 1.09$ and body dissatisfaction, $d = .74$, Stice et al., 2006). However, our effect sizes are also smaller than in other universal trials (internalization, $d = .53$ and body dissatisfaction, $d = .33$, Becker, Bull, Schaumberg, Cauble, & Franco, 2008). The shorter intervention may have lower efficacy or dissonance may be less powerful for 12- and 13-year-old girls than for older adolescents and adult women. These issues warrant further investigation.

Contrary to predictions the intervention did not significantly impact on self-reported restraint. Dietary restraint is a contentious construct in the literature. Measures of dietary restraint do not correlate with actual calorie restriction (Stice, Cooper, Schoeller, Tappe, & Lowe, 2007) and moderate levels of dieting can be related to positive health behaviors, such as increased consumption of fruit and vegetables and decreased fat consumption (Daee et al., 2002). However, an 8-year prospective study with adolescent girls indicates that self-reported dietary restraint assessed via the DRES is a risk factor for the onset of eating disorders (Stice et al., 2011). Although this was a nontargeted sample, the initial levels of restraint (intervention $M = 2.19$, $SD = .84$, control $M = 2.37$, $SD = .86$) were similar to those in a targeted intervention with girls aged 14 to 19 (Stice, Rohde, Gau, & Shaw, 2009; intervention: $M = 2.35$, $SD = .86$; control: $M = 2.31$, $SD = .86$). It may be that the restraint items are interpreted differently by early and middle/late adolescent girls.

The intervention is multifaceted and it is not possible to tease apart the influence of dissonance and media literacy components in this study. It would be informative to examine the impact of this intervention on a more comprehensive measure of body satisfaction and on a measure of restraint that taps into actual reductions in food intake, like the Eating Inventory (Stunkard & Messer, 1988). Another limitation of this study is that allocation to condition was not randomized. Constraints on condition allocation are typical of applied research. In this case, concerns about lack of randomization are reduced by the known efficacy of the intervention and because the analysis accounts for baseline differences in the study variables.

The choice of a nontargeted, shortened intervention was driven by the need to have tools that can be easily integrated into the curriculum. The results of this initial investigation of a CD intervention with a younger age group are promising. The findings clearly need replication and future research should evaluate the longer-term impact of the CD intervention. However, these results

add to the evidence that relatively short CD interventions are effective for adolescent girls.

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